

Docket No.
P-9050-930-C
HIK:LR:wd

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Takashi Suzuki, et al.
Serial No. : New Application
Filed : Concurrently Herewith
For : DOT MATRIX PRINTER HEAD

A.Sm.Th
1-18-91
H2/Prior Art

November 30, 1990

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

This is a divisional application of pending parent application Serial No. 07/612,010, filed on November 9, 1990, entitled INK-SUPPLIED WIRE DOT MATRIX PRINTER HEAD, currently pending, which is a continuation of application Serial No. 07/401,539, filed on August 31, 1989, which issued as Patent No. 4,969,759 on November 13, 1990, which is a continuation of application Serial No. 07/161,216, filed on February 17, 1988, now abandoned, which is a continuation of application Serial No. 07/035,251, filed on March 23, 1987, now abandoned, which is a continuation of application Serial No. 06/873,871, filed on June 12, 1986, now abandoned, which is a continuation of application Serial No. 06/659,816, filed on October 11, 1984, now abandoned.

Applicants respectfully submit this Information Disclosure Statement pursuant to 37 C.F.R. §§1.97 and 1.98 in order to comply with the duty of disclosure under 37 C.F.R. §1.56. The enclosed list of documents cited by applicant (PTO-1449) identifies documents which represent the closest documents of which applicants are aware. All of these documents except Items AA and AB, which recently came to applicants' attention, were cited by the Examiner or applicants during the prosecution of the parent applications to

this application, namely Serial No. 07/401,539, filed August 31, 1989, and its various parents. One copy of each of these documents is enclosed, including an English language translation of Item AJ, German Offenlegungsschrift No. 2,546,835 (Philips).

Item AA, U.S. Patent No. 3,441,950 (Miller) teaches an ink reservoir for providing ink to a recording pen nib. The receptacle 20 is sealed and mounted to the portion 36 of pen carriage 38 by being forced into press-fit engagement with tubular member 40, the sharp tapered edge 44 of which serves to puncture the sealed cap 46. Within receptacle 20 is a skeletal plastic foam material, preferably a polyurethane foam. The ink is drawn from the bottom of the foam by a rigid capillary tube 18 which also has a sharpened end to permit it to be forced through the foam. Miller teaches that the purpose of the foam is to eliminate the tendency of sloshed-about ink to bubble or foam, to cause the bursting of any air bubbles that are formed in the ink, to allow capillary action to take place in the receptacle to deliver the ink to the capillary tube 18, and to allow nearly all of the ink in the receptacle to be economically used. Above the foam is an air-filled area 32 which communicates through tube connection 30 to flexible bulb 28, which has an opening therein 32 to the outside air. When a finger of the user is placed on the opening 32 and the bulb is squeezed, the ink is primed towards the nib 12 during an initial stage of the inking operation.

Item AB, U.S. Patent No. 4,095,237 (Amberntsson et al) teaches an ink supply for a movable head for an ink jet printer. In the first embodiment (FIG. 2), the ink is received within a reservoir 12 which is closed by a plug 25 having an air opening 26 therethrough. At the base of the reservoir is an enlarged bore 29 formed with an annular support 31, which in turn supports a filter 32. The filter is formed of a foam material such as foam rubber or

a foam plastic, selected to have pores dimensioned to serve as capillaries for the ink 24. The filter is always filed with ink, preventing the passage of air through filter 32 to the channel 27, which communicates with the pump chambers 13. The purpose of the filter 32 is to prevent air from entering channel 27, even if the movement of the printing head exposes the filter. In a second embodiment (FIG. 3), the filter material fills reservoir 12 completely, although the patent teaches that it is possible to arrange the filter to fill the reservoir 12 only partially. This construction helps to transport the printing ink to the bore 29a at the bottom thereof, which communicates with conduit 27. In this embodiment, the filter 32 also helps to damp the movement of the printing ink.

The claims presented by the accompanying Preliminary Amendment are specifically directed to the ink-supply system taught in the application as filed, and to dot matrix printers formed therefrom, as well as the method of delivering ink to a dot matrix printer. The claims are specifically directed to the compression of the ink absorbing member in the vicinity of the ink-supply delivery port (also referred to in the claims as the ink receiving and transmitting means). This compression serves to provide a gradation in pore size with smaller pores in the vicinity of the exit to the tank (the above-mentioned port or means) so that the ink will tend to gravitate to the exit by increased capillary force in the compressed region, leading to efficient and relatively complete ink delivery, as taught in the specification.

Unlike the claims of the parent applications, the claims of this application are not limited to a wire dot matrix printer. The claimed subject matter of this application is derived, in large measure, from dependent claim 9 of the application as originally filed, which recited that the ink absorbing member "is made of a

porous member mounted in said ink tank and compressed in the vicinity of said ink supply port." That claim was last prosecuted in parent application Serial No. 07/401,539, filed August 31, 1989, wherein the Examiner initially rejected the claim, along with several others, under 35 U.S.C. §103 as being unpatentable over Philips (DT '835 - Item AJ), in view of Shiurila (U.S. '564 - Item AF) and Zerillo (U.S. '846 - Item AC). With specific regard to claim 9, the Examiner initially observed that "it would appear that an ink absorbing member in tank 2 of Phillips would have to be pressed by protrusion 1 (sic. - apparently intended to refer to 15) to permit the ink to be drawn by capillary action into channel 5." Similar subject matter was presented in that parent application in claim 41, which was rejected over Philips (DT '835) in view of Shiurila (U.S. '654) and Wada (U.S. '767 - Item AE). With specific reference to claim 41, the Examiner stated that "It appears that the porous member would be pressed by protrusion 15 of Phillips."

This issue was explored with Examiner Wiecking at a personal interview had on January 24, 1990, at which agreement was reached to amend the claims in a manner which would appear to place certain of the claims, including claim 9, in condition for allowance. It was specifically pointed out to the Examiner that, in fact, there is no teaching in Philips of the compression of an ink absorbing member. Specifically, a consideration of the English-language translation of the specification of the Philips German patent reveals that there is no ink absorbing member in the ink tank 2. Rather, the ink 1 is merely a liquid, as is even more apparent when the embodiment of FIG. 3 is considered, with its discussion of liquid levels in the various vessels.

It is submitted that none of the references of record teach the compression of a porous ink absorbing member in the vicinity of an ink-supply delivery port or ink receiving and

transmitting means (independent claims 25, 48, 75, 98, 125 and 132), or an ink absorbing member compressingly contained by the ink-supply tank against the ink-supply delivery port (independent claims 62 and 112).

As is apparent from a careful consideration of the specification, the compression recited in the claims of this application, and original claim 9, which was in this case since the first parent, can occur not only by use of the specific ink absorbing member shown in FIG. 8, but also because an ink absorbing member can project over the opening 141 as shown in FIGS. 9 and 10, and when so positioned, must be compressed by the arm 12d when it is inserted into position. This is apparent when FIGS. 2 and 4 are compared with FIGS. 9 and 10. A sentence affirmatively reciting this fact has been added to page 15, line 15 of the specification by the Preliminary Amendment. A similar sentence was also entered in parent application 07/401,539, which has issued as U.S. Patent No. 4,969,759. It is submitted that the sentence added by the Preliminary Amendment adds no new matter, and, in fact, is fully supported by the disclosure in the specification, drawings and claims as originally filed in the first parent.

It is respectfully believed that the documents cited pursuant to 37 C.F.R. §1.56 are clearly not a bar to allowance of the claims of this application.

Respectfully submitted,



Lawrence Rosenthal
Registration No. 24, 377
Attorney for Applicants
BLUM KAPLAN
1120 Avenue of the Americas
New York, New York 10036
(212) 704-0400